

National Climatic Data Center

DATA DOCUMENTATION

FOR

DATA SET 3292 (DSI-3292)

Weather Duration Data Set

March 19, 2003

National Climatic Data Center
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1. **Abstract:** This Weather Duration data file contains the beginning and ending times of occurrences of weather and/or obstructions to vision information that were recorded on National Weather Service's (NWS) MF1-10B form.

In 1984 there were approximately 400 stations being processed for inclusion in this digital database. There are currently 279 stations being processed regularly. These stations consist of principle climatological stations operated by the NWS, FAA, and other stations having highly trained observers.

Areal coverage includes the United States, Caribbean Islands, Pacific Islands (U.S. protectorates) and other overseas stations controlled by the National Weather Service.

The digital file contains record type, station, identification, data source codes, data measurement and quality flags, beginning and ending times of occurrences, and element type.

It must be noted that NCDC has the observations from the time the station opened, but the [NWS](#) has the current data. Official surface weather observation standards can be found in the [Federal Meteorological Handbook](#).

2. **Element Names and Definitions:**

<u>Record-Type</u>	The type of data stored in this Type record. Value is "WEA". Each record contains one day of present weather occurrences.
<u>Station-ID</u>	Contains the WBAN Station ID Number. (Assigned by NCDC). Range of values = 00000000-00099999. Five digit station numbers are always right justified zero filled.
<u>Element-Type</u>	The type of data element stored in this record. Hourly weather occurrence data (this field will always be "WTHR"). This is the only element type in this data file. Hourly weather occurrence data (present weather codes) are described in positions 39 - 40 below.
<u>Element-units</u>	This field not applicable for weather occurrence elements. This field will always be 'NA'.
<u>Year</u>	This is the year of the record. Range of value is 1984 - current year.
<u>Month</u>	This is the month of the record. Range of value is 01-12.
<u>Source-code-1</u>	Contains a code indicating the primary source of the original record this element was taken from. Range is 1-9.

SOURCE CODE TABLE

1	Original manuscript
2	SRRS

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3	AFOS
4	DATSAV
5	NMC
6	Foreign keyed
7	MAPSO
8	SRRS plus
9	Other/unknown
A	ASOS

Source code reflects normally expected data sources and do not necessarily indicate the actual source of a specific item.

Source-code-2 Contains a code indicating the backup source of the original record this element was taken from. Range is 1-9.

Source Code Table

1	Original manuscript
2	SRRS
3	AFOS
4	DATSAV
5	NMC
6	Foreign keyed
7	MAPSO
8	SRRS plus
9	Other/unknown
A	ASOS

Day This is the day of record. Range is 01-31.

NUM-VALUES The actual number of values recorded in the data portion of the record. Range of values is 001-100.

NOTE: A record may contain fewer or more data than you might expect. A daily record of weather occurrences may contain only one data value or as many as 100. When erroneous data are encountered during quality control, the original values are flagged and are followed by replacement values (see Flag-1 and Flag-2 for details).

BEG-TIME-OF-VALUE The beginning time in hour and minutes of the occurrence of weather (Present Weather).Range is 0000-2359, 8888, and 9999. Missing or unknown is recorded as '9999'.

NOTE: Check Flag-1 at all times. When Flag-1 = 'B', the beginning value will equal the hour-minute the weather occurrence began, but the ending time will be set to '8888'.

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When Flag-1 = 'C', both beginning and ending values will be set to '8888' indicating that the weather occurrence is continuing from a previous day and occurring throughout the entire present day.

ENDING-TIME-OF-VALUE The ending time in hour and minutes of the occurrence of weather. (present weather). Range is 0000-2359, 8888, and 9999. Missing or unknown is recorded as '9999'.

NOTE: Check Flag-1 at all times. When Flag-1 = 'E', ending time will be set to equal the hour-minute that the weather occurrence ended, but the beginning time value will be set to '8888'.

When Flag-1 = "C" both beginning and ending times will be set to 8888 indicating that the weather occurrence is continuing from a previous day and occurring throughout the entire present day.

PRESENT-WEATHER Present weather (the occurrence of weather). Present weather codes are two characters in length. The leftmost digit indicates the general class of present weather while the rightmost digit qualifies weather severity.

CODE FOR WTHR RANGE 10 TO 19

1X **** Thunderstorm, Tornado, Squall where:

X = 0 thunderstorm - lightning and thunder.
wind gust < 50 knots - hail < .75 in.
= 1 heavy or severe thunderstorm - frequent
intense lightning and thunder. Wind
gust > 50 knots - hail > .75 in.
= 4 moderate squall (Only moderate squalls are
recorded.

A squall is a sudden increase of wind speed by at least 16 knots, reaching 22 knots or more and lasting for at least one minute.

= 6 water spout
= 7 funnel cloud
= 8 tornado
= 9 unknown

CODE FOR WTHR RANGE 20 TO 29

2X **** Rain, Rainshowers, Freezing Rain where:

X = 0 light rain
= 1 moderate rain
= 2 heavy rain
= 3 light rain showers
= 4 moderate rain showers
= 5 heavy rain showers
= 6 light freezing rain
= 7 moderate freezing rain
= 8 heavy freezing rain
= 9 Unknown

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Light = Trace (< .005 in.) to .10 inches per hour
Moderate = .11 to .30 inches per hour
Heavy = > .30 inches per hour

CODE FOR WTHR RANGE 30 TO 39

3X **** Rain Squalls, Drizzle, Freezing Drizzle where:

X = 0 light rain squalls
= 1 moderate rain squalls
= 3 light drizzle
= 4 moderate drizzle
= 5 heavy drizzle
= 6 light freezing drizzle
= 7 moderate freezing drizzle
= 8 heavy freezing drizzle
= 9 unknown

When drizzle or freezing drizzle occurs with other weather phenomena:

Light = Trace (< .005 in.) to .01 inches per hour
Moderate = > .01 to .02 inches per hour
Heavy = > .02 inches per hour

When drizzle or freezing drizzle occurs alone:

Light = Visibility 5/8 mile or greater
Moderate = Visibility 5/16 - 1/2 mile
Heavy = Visibility 1/4 mile or less

CODE FOR WTHR RANGE 40 TO 49

4X **** Snow, Snow Pellets, Ice Crystals where:

X = 0 light snow
= 1 moderate snow
= 2 heavy snow
= 3 light snow pellets
= 4 moderate snow pellets
= 5 heavy snow pellets
= 7 moderate ice crystals
= 9 unknown

Any occurrence of ice crystals is recorded as 47.

CODE FOR WTHR RANGE 50 TO 59

5X **** Snow Showers, Snow Squalls where:

X = 0 light snow showers
= 1 moderate snow showers
= 2 heavy snow showers
= 3 light snow squall
= 4 moderate snow squall
= 5 heavy snow squall

CODE FOR WTHR RANGE 60 TO 69

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6X **** Sleet, Sleet Showers, Hail where

X = 0 light snow pellet showers
= 1 moderate ice pellet showers
= 2 heavy ice pellet showers
= 4 moderate hail
= 9 unknown

CODE FOR WTHR RANGE 70 TO 79

7X **** Fog, Blowing Dust, Blowing Sand where:

X = 0 fog
= 1 ice fog
= 2 ground fog
= 3 blowing dust
= 4 blowing sand
= 5 heavy fog*
= 6 glaze
= 7 heavy ice fog*
= 8 heavy ground fog*
= 9 unknown

These values are recorded only when visibility is less than 7 miles.

*Heavy fog, heavy ice fog, and heavy ground fog may not have occurred for the entire period as indicated in the weather duration times. See example of how flags are used under "FLAG EXAMPLES".

CODE FOR WTHR RANGE 80 TO 89

8X **** Smoke, Haze, Smoke and Haze, Blowing
Snow, Blowing Spray, Dust where:

X = 0 smoke
= 1 haze
= 2 smoke and haze
= 3 dust
= 4 blowing snow
= 5 blowing spray
= 6 dust storm
= 7 volcanic ash (begin Aug. 1992)
= 9 unknown

These values are recorded only when visibility is less than 7 miles.

CODE FOR WTHR RANGE 90 TO 92 AND 99

9X **** Ice Pellets where:

X = 0 light ice pellets
= 1 moderate ice pellets
= 2 heavy ice pellets
= 9 unknown

FLAG-1 FLAG-1 is a data measurement flag.

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7:

B = Beginning of continuous period.
 E = End of continuous period from previous day.
 C = Continuous throughout present day (from previous day).
 b = (blank) occurrence began and ended on this day.

NOTE: When FLAG-1 = B, the beginning time will equal the hour-minute that the weather occurrence began but the ending time will be set to '8888'.

When FLAG-1 = E, the ending time will equal the hour-minute that the weather occurrence ended but the beginning time will be set to '8888'.

When FLAG-1 = C, both the beginning and ending times will be set to '8888' indicating that the weather occurrence is continuing from a previous day and occurring for the entire present day.

FLAG-2 FLAG-2 is a data quality flag.

0 = Observed data has passed all internal consistency checks.
 1 = Validity indeterminable
 2 = Observed data has failed internal consistency check
 (Subsequent edited value follows observed value).
 3 = Observed data has failed internal consistency check (no
 subsequent edited value follows).
 4 = Observed data value invalid (no edited value follows).
 E = Edited data value passes all system checks (no observed
 value is present).
 S = Manually edited data value (passes all system checks).

FLAG EXAMPLES:

Light rain showers and fog occurred on October 25th and the fog period continues into the next day. On October 26th fog and heavy fog occurred until 0830 HRS.

10	25	0536	0629	23	b0	Light Rain Showers
		0725	0945	70	b0	Fog
		0932	0945	23	b0	Light Rain Showers
		1130	8888	70	B0	Fog began at 1130 HRS and has continued into the next day.
	26	8888	0830	75	E0	Fog continued from the previous day and ended at 0830 HRS. Also heavy fog has occurred sometime between 0001 and 0830.

Fog began on October 27th at 1421 HRS and ended on October 29th at 1203 HRS.

10	27	1421	8888	70	B0	Fog began at 1421 HRS and has continued into the next day.
	28		8888	70	C0	Fog continued throughout the entire day into the following day.
	29	8888	1203	70	E0	Fog continued from previous 2 days and ended at 1203 HRS.

Present Weather Ice Fog should have been fog.

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10	14	0945	1115	71	b2	Value of Ice Fog (71) has failed consistency check. A subsequent value will follow.
10	14	0945	1115	70	b5	This fog value (70) has replaced the Ice Fog (71) as previously reported. This is a manually edited data value.

Present Weather value (40) has failed an edit. Unable to determine what the value should be so no value will follow.

10	16	0836	0902	40	b3	Light Snow value (40) has failed the edit. No edited manual value will follow.
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No problems here. All occurrences have passed edit checks normally.

10	18	0430	0530	20	b0	Light Rain From 0430-0530.
		0448	1900	70	b0	Fog from 0448-1900.
		0703	1013	20	b0	Light Rain from 0703-1013.

SAMPLE VARIABLE RECORD

NOTE: b = Blank Space

PHYSICAL POSITION	LOGICAL POSITION	RECORD CONTENTS	MEANING
1-4		0058	Record control word used by the operating system (Contains the total number of characters in the record; variable-length record only).
5-7	1-3	WEA	RECORD-TYPE
8-15	4-11	00034564	STATION-ID (WBAN station number 34564)
16-19	12-15	WTHR	ELEMENT-TYPE
20-21	16-17	NA	ELEMENT-UNITS
22-25	18-21	1984	YEAR
26-27	22-23	02	MONTH
28	24	4	SOURCE-CODE-1 (Primary source = DATSAV)
29	25	1	SOURCE-CODE-2 (Back-up source = Manuscript)
30-31	26-27	10	DAY OF THE MONTH
32-34	28-30	002	NUM-VALUES: Two data entries follow

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FIRST DATA ENTRY

35-38	31-34	1210	Beginning Time of 'WEA' occurrence
39-42	35-38	1245	Ending Time of 'WEA' Occurrence
43-44	39-40	11	Present Weather (WEA)
45	41	b	FLAG-1
46	42	0	FLAG-2

SECOND DATA ENTRY

47-50	43-46	1600	Beginning Time of 'WEA' Occurrence
51-54	47-50	1720	Ending Time of 'WEA' Occurrence
55-56	51-52	10	Present Weather (WEA)
57	53	b	FLAG-1
58	54	0	FLAG-2

NOTE: There were just two weather occurrences on the 10th day of February.

3. **Start Date:** 19840101

4. **Stop Date:** 1997

5. **Coverage:** United States, Caribbean Islands, Pacific Islands (U.S. protectorates), and other overseas stations controlled by the National Weather Service.

6. **How to Order Data:**

Ask NCDC's Climate Services about the cost of obtaining this data set.
Phone: 828-271-4800
FAX: 828-271-4876
E-mail: NCDC.Orders@noaa.gov

7. **Archiving Data Center:**

National Climatic Data Center
Federal Building
151 Patton Avenue
Asheville, NC 28801-5001
Phone: (828) 271-4800.

8. **Technical Contact:**

National Climatic Data Center
Federal Building
151 Patton Avenue
Asheville, NC 28801-5001
Phone: (828) 271-4800.

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9. **Known Uncorrected Problems**: No information provided with original documentation.
10. **Quality Statement**: DSI-3292 is derived directly from DSI-3280. See "Surface Airways Hourly DSI-3280" documentation for information on the quality of this source data set.
11. **Essential Companion Datasets**: Surface Airways Hourly, DSI-3280
12. **References**: No information provided with original documentation.